

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

## PRODUCT IDENTIFICATION

Product Name: Junction™

## HAZARDS CLASSIFICATION (0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

NFPA: HEALTH-2 FIRE-1 REACTIVITY-0

HMIS: HEALTH-2 FIRE-1 REACTIVITY-0

## MANUFACTURER

Company Name: Griffin Corporation  
Address: PO Box 1847, Rocky Ford Road  
Valdosta, GA 31603-1847

## EMERGENCY PHONE NUMBER(S)

Griffin Corporation: (800) 237 1854

Chemtec: (800) 424 9300

**2. COMPOSITION/ INFORMATION ON INGREDIENTS**

Component Name	% by Wt.	CAS#	ACGIH TLV	OSHA PEL
Copper Hydroxide	46.08	20427-59-2	1 mg/m <sup>3</sup> *	1 mg/m <sup>3</sup> *
Mancozeb	15.00	8018-01-7	Not established	Not established
Zinc Oxide	3.0	1314-13-2	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>

\* As copper dusts or mists (CAS # 7440-50-8).

Components not precisely identified are proprietary or not hazardous.

**3. HAZARDS IDENTIFICATION**

## EMERGENCY OVERVIEW

Severely irritating to corrosive to the eyes. Toxic orally. Irritating to the skin and respiratory system. See below for route-specific details.

## POTENTIAL HEALTH EFFECTS

Inhalation: Irritating to the respiratory system of rats. Excessive exposure may cause cough, mucous production, shortness of breath, reflecting metal fume fever.  
Eye Irritation: Severely irritating to corrosive to the eyes of rabbits.  
Skin Irritation: Irritating to the skin of rabbits. Excessive exposure, especially if prolonged, may produce skin irritation. Repeated exposure may cause allergic contact dermatitis.

## Hazards Identification continued:

Ingestion:	Toxic via ingestion to rats. This material may produce toxicity if ingested in large quantities. Symptoms of over-exposure may include nausea and vomiting, abdominal pain, and central nervous system depression, which, if severe enough, may lead to death.
Chronic:	Low chronic toxicity unless excessive exposure is encountered. Excessive exposure to copper by inhalation may result in irritation of the upper respiratory tract which, if severe, may lead to perforation of the nasal septum after long periods of exposure.

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**4. FIRST AID MEASURES**

Inhalation:	Remove victim to fresh air. If not breathing, give artificial respiration preferably mouth-to-mouth. Get professional medical attention immediately.
Eye Contact:	Hold eyelids open and flush with water for 15-20 minutes until no evidence of chemical remains. Get professional medical attention immediately.
Skin Contact:	Remove contaminated clothing and shoes. Wash with plenty of soap and water for 15-20 minutes until no evidence of chemical remains. Get professional medical attention.
Ingestion:	Drink 1 to 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Get professional medical attention.
Emergency Medical Treatment:	Treat symptomatically. Acute oral overexposure to copper hydroxide, a major component of this product, may cause hypotension, hemolysis, and, rarely, methemoglobinemia. Severe intoxication is associated with serum copper levels greater than 500 mcg/dl. Copper hydroxide is an emetic, however, dilution with fluids, adsorption with activated charcoal, or lavage may be indicated. Chelation therapy with BAL or D-penicillamine has proved useful in cases of acute overexposure.

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**5. FIRE FIGHTING MEASURES**

Flash Point & Method:	Not determined
Flammable Limits:	Not determined
Autoignition Temperature:	Not determined

Fire Fighting Measures continued:

#### FIRE FIGHTING HAZARDS & PROCEDURES

General Hazard:	Negligible fire hazard when exposed to heat or flame. Prevent human exposure to fire, smoke, fumes or products of combustion.
Extinguishing Media:	Use dry chemical, carbon dioxide, or foam.
Fire Fighting Instructions:	Use standard organic chemical fire fighting techniques in extinguishing fires involving this material.
Fire Fighting Equipment:	Wear protective clothing and self-contained breathing apparatus.
Hazardous Combustion Products:	Not determined

#### 6. ACCIDENTAL RELEASE MEASURES

Land Spill:	Sweep up and place in suitable (fiberboard) containers for later disposal.
Water Spill:	If feasible, copper may be precipitated/ultra filtrated with caustics or other chemicals and resulting sludge disposed of in a chemical landfill.

#### 7. HANDLING AND STORAGE

General Information:	Store in a clean, dry area. Do not store near feed, food or within the reach of children.
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#### 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

##### PESTICIDE APPLICATORS & WORKERS

These workers must refer to the Product Label and Directions For Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

##### MANUFACTURING, COMMERCIAL BLENDING, & PACKAGING WORKERS

Ventilation:	Control enclosed spaces with adequate ventilation to prevent exceedance of ACGIH TLV or OSHA PEL.
Respiratory Protection:	In enclosed spaces where the TLV or PEL may be exceeded, wear NIOSH/MSHA approved dust or mist respirator.
Eye Protection:	Wear protective eyewear to prevent contact with this substance.
Protective Clothing:	Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Vapor Pressure:	Not determined
Density:	0.5485 g/ml
Solubility in Water:	Technical copper hydroxide has a solubility of 0.1 - 5 ppm.
pH:	9.63
Boiling Point:	Not determined
Melting Point:	Not determined
Viscosity:	Not determined
Odor:	Not determined
Color:	Dark green
Physical State:	Granule

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**10. STABILITY AND REACTIVITY**

General:	This material is stable under normal conditions.
Incompatible Materials:	Not determined
Hazardous Decomposition:	Not determined
Hazardous Polymerization:	Material not known to polymerize.

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**11. TOXICOLOGICAL INFORMATION****ACUTE**

Inhalation:	Acute inhalation $LC_{50} > 1.266$ mg/L (rat - 4 hour). May cause irritation of the mucous membranes. Exposure to copper fumes may result in metallic taste, nausea, vomiting, and metal fume fever with chills, fever, aching muscles, dry throat and headache.
Eye Irritation:	Considered to be severely irritating to corrosive to the eyes of a rabbit.
Skin Irritation:	Considered a non-irritant to the skin of a rabbit. Many copper salts cause itching, eczema and, rarely, sensitization reactions in previously exposed persons.
Skin Absorption:	Acute dermal $LD_{50} > 5,000$ mg/kg.
Ingestion:	Oral $LD_{50} = 2,535$ mg/kg. Ingestion of large doses of copper salts may result progressively in irritation of the gastrointestinal tract, nausea, vomiting, salivation, gastric pain, hemorrhagic gastritis, diarrhea, capillary damage, liver and kidney damage, and central nervous system stimulation followed by depression. Jaundice, pain in the liver, and hemolytic anemia have been reported following acute human poisonings.

Toxicological Information continued:

**CHRONIC:** Repeated ingestion of copper salts may results in anemia, liver, and kidney damage. Chronic inhalation exposure may cause a metallic taste in the mouth, irritation of the upper respiratory tract such as the nasal mucosa that may progress to perforation of the nasal septum. Chronic cough may also occur. Copper hydroxide which comprises a large percentage of this product governs the toxicity of the product. The remaining components have low to negligible toxicity.

**Special Health Effects:** Copper-intolerant individuals should not be exposed to this material. No additional information is available on whether overexposure to this material would aggravate other existing special medical conditions.

## 12. ECOLOGICAL INFORMATION

**Chemical Fate:** The degree of mobility of copper in the environment depends upon the pH of ambient soils and waters. The higher the acidity, the more soluble copper salts are and, hence, the more mobile. Partitioning of copper into air is negligible due to the low vapor pressure of copper salts.

### ECOTOXICITY (Copper Hydroxide)

Test Type	Species	Value
Aquatic LC <sub>50</sub>	Bluegill	180,000 ppb
Aquatic LC <sub>50</sub> (96 hr)	Fathead Minnow	23 ppb
Aquatic LC <sub>50</sub>	Rainbow Trout	23 ppb
Aquatic EC <sub>50</sub>	<i>Daphnia magna</i>	6.5 ppb
Avian - acute oral LD <sub>50</sub>	Bobwhite Quail	>340 mg/kg
Avian - 8-day dietary LD <sub>50</sub>	Bobwhite Quail	>10,000 ppm
Avian - 8-day dietary LD <sub>50</sub>	Mallard Duck	>10,000 ppm

## 13. DISPOSAL CONSIDERATIONS

Comply with appropriate disposal regulations. Landfill solids at permitted sites. Use registered transporters.

**14. TRANSPORT INFORMATION**

**Special Note:** Inhalation data generated using a smaller particle size than is reasonably foreseeable to be encountered by a human during transport. Since less than 10% of this substance is dust in a respirable range, this material is not regulated for transport in Class 6.1 per DOT 49 CFR 173.132 (b) (3), IATA 3.6.3.3, IMO IV / 6.1 / 2.2.3, RID / ADR 2600 / 2.5.

Department of Transportation (DOT): Not Regulated

Note: Regulated as a MARINE POLLUTANT in bulk and as a HAZARDOUS SUBSTANCE. RQ for ethylenebisdithiocarbamic acid, salts and esters (mancozeb) = 5000 lbs (2270 kg).

International Air Transport Association (IATA): Not Regulated

International Maritime Organization (IMO): Regulated

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Mancozeb 15%)

Note: "RQ" must be added to proper shipping name for bulk shipments of 5000 lbs or more mancozeb per package.

Class: 9

Identification Number: UN 3077

Packing Group: III

Special Notes: MARINE POLLUTANT  
RQ for ethylenebisdithiocarbamic acid, salts and esters (mancozeb) = 5000 lbs (2270 kg).

**15. REGULATORY INFORMATION**

OSHA: This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR 1910.1200).

TSCA: All product components are on the TSCA Chemical Inventory.

CERCLA: Releases of a component of this material (metallic copper) to air, land, or water are reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

RCRA: When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR 261.33.

Regulatory Information continued:

SARA TITLE III

311/312 Hazard Categories: This product has been reviewed according to the EPA "Hazard Categories" and is categorized as an acute health hazard.

313 Reportable Ingredients: This product contains a percentage of metallic copper (CAS 7440-50-8) which is listed in Section 313 above de minimis concentrations.

STATE REGULATIONS

California: Listed under copper (CAS No. 7440-50-8) with footnotes referencing above federal standards.

New Jersey: Footnotes reference above federal standards plus listing of copper on the New Jersey Environmental Hazardous Substances List (NJ Department of Environmental Protection, Title 7 New Jersey Administrative Code (NJAC) Chapter 1G).

Massachusetts: Listed as copper (CAS No. 7440-50-8) and copper-based pesticide, solid, toxic (no CAS No. assigned).

Pennsylvania: Listed as copper fume or dust (CAS No. 7440-50-8) as an environmental hazard.

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16. OTHER INFORMATION

REVISION SUMMARY

This document has been updated using the standard Griffin Corporation ANSI Z400.1 compliant format and replaces the one dated 02/21/96. Revisions were made in Section 14.

Junction™ is a trademark of Griffin Corporation.

**The information in this Material Safety Data Sheet relates to this specific material. It may not be valid for this material if used in combination with any other materials or in any process. It is the users' responsibility to satisfy themselves as to the suitability and completeness of this information for their own particular use.**